ACQUISITION REFORM

Acquisition And Logistics Excellence Week

The Principal Deputy Under Secretary of Defense for Acquisition, Technology and Logistics has announced that Acquisition and Logistics Excellence (A&LE) Week will be Sept. 10-14, 2001. Originally scheduled for June 4-8, 2001, the event was changed to allow time for confirmation of the new acquisition and logistics officials, including the Service Secretaries.

For the past 5 years, DOD has sponsored A&LE Week to emphasize DOD and industry acquisition reform initiatives. During this week, each DOD organization is requested to cease normal operations for 1 day to participate in activities that focus on acquisition and logistics reform. Commanders and managers at all levels are responsible for planning this day's events.

To support commands in the A&LE Week effort, the Defense Acquisition University's Acquisition Reform Communications Center will provide a package of training materials. This package and other pertinent information is available online at **http://www.acq.osd.mil/alr01**.

The Army point of contact for A&LE Week 2001 is Melissa J. Pittard, (703) 681-9141, DSN 761-9141, or e-mail **melissa.pittard@saalt.army.mil**.

Commercial Acquisitions

Dr. Kenneth Oscar, Acting Assistant Secretary of the Army for Acquisition, Logistics and Technology, recently signed a memorandum outlining commercial acquisition procedures. This memorandum was in response to a directive from the Under Secretary of Defense for Acquisition, Technology and Logistics requiring that "to the maximum extent possible, commercial acquisitions should be conducted using Federal Acquisition Regulation (FAR) Part 12."

Oscar's memorandum was the impetus for the Army's plan to increase the use of FAR Part 12 for the acquisition of commercial items. The plan requests that Army commanders and program executive officers take appropriate action to ensure that Army acquisition teams are aware of the plan's embedded goals and that they use FAR Part 12 as appropriate.

The Armywide goals are to:

• Double the dollar value of FAR Part 12 contract actions awarded in 1999 by the end of FY05. The 1999 baseline is $2.479 million.

• Increase the number of FAR Part 12 contract actions awarded to 50 percent of all Army contract actions by the end of FY05. (For the purposes of these goals, a contract action is defined as any new contract award and/or new delivery order placed against a contract awarded with a value greater than $25,000.)

The implementation plan included a policy change, effective immediately, that all services are presumed to be commercial in accordance with the FAR Part 12 definition of commercial item. In addition, FAR Part 12 policies and procedures will be used to buy these services. (FAR Part 36, Construction and Architect Engineering Contracts are excluded.) For those services where the results of market research indicate that the service is not commercial, the local competition advocate must approve the commercial determination.

Other action items included:

• Class commerciality determinations;

• Development of a commercial acquisitions community practice area within the Army's Internet-based Procurement Knowledge Center;

• Training in market research, performance requirements, and use of FAR Part 12;

• Development of a metric to track Army goals quarterly; and

• Increased management emphasis on appropriate use of FAR Part 12.

The point of contact for the above acquisition reform article is Monti Jaggers, (703) 681-7571, ***monteze.jaggers@saalt.army.mil****.*

NEWS BRIEFS

A New Micro Rappel System

Instead of slinging a load of rope over their shoulders, soldiers can now use a lean, simple micro rappel system. The micro rappel system provides soldiers, military police special reaction teams, and Special Operations Forces with compact, lightweight equipment to enter or escape from buildings. In contrast, the standard military rappel system is heavy and bulky, and the equipment is carried in separate bags or containers.

"Not every soldier carries the standard rope. With this system, everybody can carry the rope. This supplements the mission and gives them added capability," said Barry Hauck, Project Director for Product Manager, Soldier Equipment at the U.S. Army Soldier Systems Center (Natick).

According to Joe Jones, a Combat Developer at Fort Benning, GA, the micro rappel system provides commanders with an alternative in emergency situations and gives special operators a less cumbersome rope that's not as likely to interfere with the mission.

The micro rappel system is a nylon belt with a strap at each end that pulls out and wraps around each thigh to form a "seat." Attached to the belt is a nylon container about the size of an ammunition pouch. The pouch holds a descender, a carabiner, and 80 feet of 5mm rope with a Kevlar center surrounded by a nylon shell. When necessary the rope is protected by a sheath of fabric for high-abrasion surfaces, such as brick. The rope's tensile strength exceeds 5,000 pounds.

Advancing Composite Artillery Projectiles

Modern composite materials are being exploited to reduce the weight of munitions and other materiel required by U.S. Army forces. Of particular interest is the use of high-strength composite materials that are as strong as steel in selected orientations, yet weigh one-third as much per unit volume.

The High Capacity Artillery Projectile (HICAP) Program was the first effort of its kind to employ off-the-shelf, low-cost composite materials for fabrication of artillery shells. The prototypes had to withstand more than 13,000 g's of axial acceleration to be compatible with the highest propellant charge in the 155mm category. The M483A1 and the M864 are examples of two 155mm artillery shells. The M864 is a reduced-drag, slightly less lethal version of the M483A1. Both, however, carry grenades. Another cargo-carrying round is the XM898 Sense and Destroy Armor (SADARM) projectile, which delivers two submunitions for counter-battery missions. Development of the XM898 is ongoing.

Technology from the HICAP Program has been used extensively by the Navy in its Best Buy Program and by the Army in fabrication of the current lightweight 75-pound artillery shell.

Cargo-carrying artillery shells have always been fabricated from steel for two reasons: to sustain the setback loads from launch and to satisfy the mass distribution of the shell required for spin stabilization. Composite artillery shells weigh substantially less than their steel counterparts, allowing an equal payload to that of steel shells at a 25 to 30 percent overall weight reduction. However, they do not have sufficient mass at the outer radius for spin stabilization and, therefore, require fins for stability. Composite deployable fins were demonstrated with the HICAP Program in June 1996.

The HICAP round further demonstrated that two-piece, composite-body, fin-stabilized, artillery projectiles were achievable, even for the highest propellant charges. HICAP's successes were dampened by a rear section that created large base drag. The question of the ramifications of a two-piece projectile also loomed.

A new twist on the HICAP theme emerged in the creation of a fin-stabilized, single-piece, composite round. The forward shell of this 75-pound projectile, which is made from a carbon epoxy composite, is relatively thin as it sustains only its own weight during launch. It is often referred to as an aeroshell, meaning that it is more of a containment vessel than a structural support shell like the rear cargo shell. The new fin stabilization approach is also used by the round to incorporate deployable elliptical fins on the rear projectile section. This design results in lower drag than HICAP, yet retains sufficient fin area for stabilization. This fin-body rear section intrudes into the gun chamber, but allows sufficient volume for almost all standard propellant charges. The composites and fin package combine for a substantial weight reduction from the 103-pound M483.

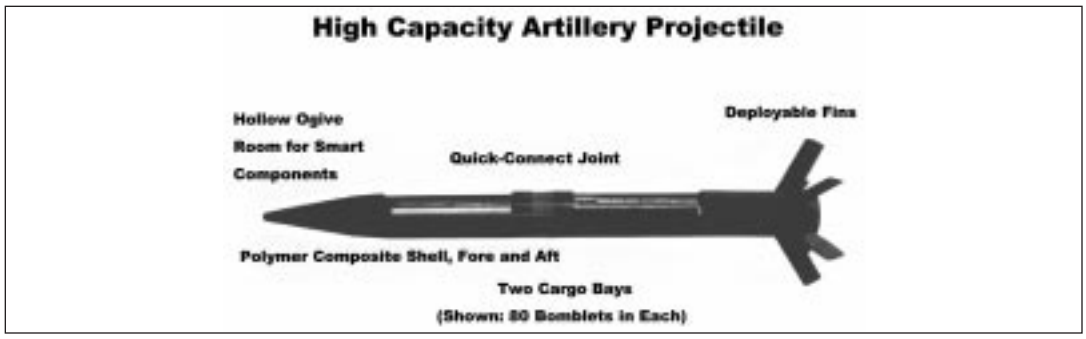
The forward shell deploys payload by bursting from pressure internally generated by rapidly burning energetics. The results of laboratory burst tests with M42 grenade payloads created radial expulsion velocities that were considered favorable for an acceptable grenade density on the target area.

As the composites layup technology matured, thinner-walled shells were fabricated. The composite shell can be made very thin to allow more grenades as payload. These ultrathin composite shells were demonstrated under the Navy's Best Buy Program (a 5-inch guided artillery shell program to which virtually all of the HICAP technology was transferred).

Conclusion

Composite technologies, coupled with aerodynamic advances, are offering munitions designers options for meeting today's objectives for "lighter and more lethal" munitions. The logistical benefit of these rounds is that they may be used with conventional artillery systems as well as with the newer lightweight systems mentioned. The composite shell's structural integrity and efficacy is well established. Additionally, cost reduction is being achieved through ongoing improvements in manufacturing techniques.

The preceding article was written by Jim Garner, an Aerospace Engineer, and James Bender, a Mechanical Engineer, both employed at the U.S. Army Research Laboratory, Aberdeen Proving Ground, MD. Both are graduates of the College of Engineering, University of Maryland.



New Chemical And Biological Protective Suits Ready To Issue

Chemical and biological agent protective suits will soon replace current protective clothing no longer in production. Procurement of the Joint Service Lightweight Integrated Suit Technology (JSLIST) suit, consisting of coat and trousers, began in 1997. The suit will be released to Army units from the war reserve as the Battledress Overgarment (BDO) supply depletes. Fielding will continue through 2005.

JSLIST resulted from a joint program led by the Marine Corps to develop an overgarment that can be worn in all environments under imminent threat of a chemical or biological attack and after these operations have started. The JSLIST suit replaces three types of chemical and biological protective suits.

The project is the result of a congressional mandate that future research, development, and procurement of all chemical items be jointly managed. "The military wanted to make a joint program for the sake of economy. Commonality will save money through the economy of scale," said George Costas, Project Engineer for Product Manager, Soldier Equipment at the U.S. Army Soldier Systems Center (Natick).

Service members will find many reasons to like the JSLIST suit. It is about a pound lighter and 60 percent less bulky (when packaged) than the BDO. JSLIST suits feel cooler and can be washed six times while the BDO cannot be washed.

"You sweat like crazy in these things. It can be a pretty miserable existence to wear it until the end of its wear life," Costas said. The wear life for the JSLIST overgarment is 45 days compared to 22 days for the BDO. Service life extends from 30 days for the BDO to 120 days for the JSLIST overgarment. Both provide 24 hours of protection after exposure to a chemical agent, and the JSLIST overgarment is expected to have at least the same shelf life as the BDO.

Another major improvement is the charcoal liner. The BDO liner is a charcoal-impregnated polyurethane foam and nylon-tricot laminate. The JSLIST liner consists of a nonwoven front laminated to activated carbon spheres and bonded to a knitted back that absorbs chemical agents. The BDO foam deteriorated as the wearer rubbed against the foam, and it could become messy.

Depending on the temperature and mission, the overgarment may be worn over the standard duty uniform, underwear, or over or under cold-weather garments.

JSLIST suits are stored in vacuum-sealed packages. They are offered in seven sizes and have the advantage of being split-issue, allowing users to combine a large coat with extra large pants. "With all the body types, you get a more comfortable fit and better chemical protection because it fits them properly," Costas said.

Natick is part of the U.S. Army Soldier and Biological Chemical Command (SBCCOM). For more information about SBCCOM or the Soldier Systems Center (Natick), visit their Web site at **http://www.sbccom.army.mil**.

New Liner Improves Boots

A removable insulation liner and a softer, more flexible midsole are two major changes for the Army's improved intermediate cold/wet boot. The first version of the boot was fielded in the early 1990s. That version filled the void between the standard-issue leather combat boots, which offer minimal performance in cold and damp conditions, and the extreme cold weather vapor barrier boots, which lock out the cold and wet with their rubber-enclosed air chambers but don't breathe.

The current 10-inch-high intermediate cold/wet boot provides a compromise for dismounted soldiers operating in cold, wet environments where the average temperature is 10 degrees below zero to 40 F. However, the boot's comfort level changes when the boot's interior becomes soggy.

"The insulation was built into the boot itself, but what would happen is that the inside would get soaked if water went over the top of the boot or sometimes sweat could build up. When the insulation gets wet, it's useless," said Chris Palmer, Project Officer for Military Footwear at the U.S. Army Soldier Systems Center (Natick).

Soldiers depended on an extra pairs of boots to wear while their wet boots dried. They also used boot driers to speed the process. Both are an extra expense and inefficient.

The blueprint for an intermediate boot came from the commercial market, but the product improvement effort carried out by the Product Manager, Soldier Equipment found none of the currently available boots have removable liners.

The upper part of the new boot is still constructed of highly water-resistant and breathable military-specification leather bonded with a Gore-Tex lining. It also has a wet 200-gram insulation liner that can be removed and exchanged for a dry one, allowing soldiers to continue wearing the same boot. Instead of having two or three pairs of boots, soldiers will have two or three washable liners.

"You can still wear the boot without the liner, but it won't fit right. Two liners come with the boot, but more will be available if necessary," Palmer said.

The boot's tongue has also been upgraded with the more breathable leather. A rugged, aggressive-tread Vibram vulcanized rubber outer sole stays with the improved model. However, instead of rubber, the new boot is made with a softer polyurethane midsole.

Natick is part of the U.S. Army Soldier and Biological Chemical Command (SBCCOM). For more information about SBCCOM, the Soldier Systems Center (Natick), or various products, go to **http://www.sbccom.army.mil**.